IN THE CLAIMS:

Please cancel claims 1-2, 11-15, 35-36, 45-47, 51-55, and 57 as follows:

1.-3. (Cancelled)

4. (Original) A method of film deposition for integrated circuit fabrication, comprising:

chemisorbing a first layer on a substrate, the first layer selected from a first tantalum layer and a first nitride layer;

chemisorbing a second layer on the first layer, the second layer different from the first layer, the second layer selected from a second nitride layer and a second tantalum layer;

the first layer and the second layer in combination providing a tantalum-nitride layer; and

plasma annealing the tantalum-nitride layer to remove nitrogen therefrom.

5. (Original) The method of claim 4, wherein the plasma annealing is performed with a plasma source material chemically non-reactive to the tantalum-nitride layer and having an atomic mass closer to nitrogen than tantalum.

6. (Previously Presented) The method of claim 4, wherein the plasma annealing is performed with plasma source material selected from argon (Ar), xenon (Xe), helium (He), neon (Ne), hydrogen (H_2), nitrogen (N_2), and combinations thereof.

7. (Original) The method of claim 4, further comprising sequentially repeating the chemisorbing of the first layer and the second layer along with interspersed plasma anneals to provide the tantalum-nitride layer.

8. (Original) The method of claim 4, further comprising sequentially repeating the chemisorbing of the first layer and the second layer to provide the tantalum-nitride layer.

9.-15 (Cancelled)

16. (Previously Presented) A method of film deposition for integrated circuit fabrication, comprising:

providing at least one process system, the at least one process system having a chamber;

locating a substrate in the chamber;

providing a tantalum containing gas to the chamber;

chemisorbing a first layer on the substrate at least in partial response to the tantalum containing gas;

purging the chamber with at least one purge gas;

providing a nitrogen containing gas to the chamber;

chemisorbing a second layer on the first layer at least in partial response to the nitrogen containing gas;

purging the chamber with the at least one purge gas; and

forming a plasma for annealing the second layer.

17. (Original) The method of claim 16, further comprising sequentially repeating the chemisorbing of the first layer, the purging of the chamber and the chemisorbing of the second layer to provide multiple tantalum nitride sublayers.

18. (Original) The method of claim 16, wherein the substrate is maintained approximately below a thermal decomposition temperature of the tantalum containing gas for chemisorbing of the first layer.

19. (Original) The method of claim 18, wherein the substrate is maintained approximately above the thermal decomposition temperature of the tantalum containing gas for the chemisorbing of the first layer.

20. (Original) The method of claim 18, wherein the purge gas is selected from the group of helium (He), neon (Ne), argon (Ar), hydrogen (H_2), nitrogen (N_2), and combinations thereof.

21. (Original) The method of claim 20, further comprising providing a plasma source gas to the chamber for ignition to provide the plasma.

22. (Original) The method of claim 21, wherein the plasma source gas and the at least one purge gas is argon (Ar).

23. (Original) The method of claim 18, wherein the nitrogen containing gas is ammonia (NH_3).

24-31. (Cancelled)

32. (Original) A method of film deposition for integrated circuit fabrication, comprising:

co-reacting a tantalum containing precursor and a nitrogen containing precursor to chemisorb a first layer on a wafer surface to provide a tantalum-nitride layer; and

plasma annealing the tantalum-nitride layer to remove nitrogen therefrom.

33. (Original) The method of claim 32, wherein the plasma annealing is performed with a plasma source material chemically non-reactive to the tantalum-nitride layer and having an atomic mass closer to nitrogen than tantalum.

34. (Previously Presented) The method of claim 33, wherein the plasma annealing is performed with plasma source material selected from argon (Ar), xenon (Xe), helium (He), hydrogen (H_2), nitrogen (N_2), neon (Ne), and combinations thereof.

35.-37. (Cancelled)

38. (Previously Presented) A method of film deposition for integrated circuit fabrication, comprising:

providing a process system, the process system having a chamber;

locating a substrate in the process chamber;

providing a tantalum containing gas to the chamber;

providing a nitrogen containing gas to the chamber;

chemisorbing tantalum and nitrogen from the tantalum containing gas and the nitrogen containing gas to provide a tantalum-nitride layer on the substrate; and

plasma annealing the tantalum-nitride layer.

39. (Previously Presented) The method of claim 38, wherein the tantalum containing gas is a tantalum based organo-metallic precursor or a derivative thereof.

40. (Original) The method of claim 39, wherein the tantalum based organo-metallic precursor is selected from pentaethylmethylamino-tantalum (PEMAT), pentadiethylamino-tantalum (PDEAT), pentadimethylamino-tantalum (PDMAT), and derivatives thereof.

41. (Original) The method of claim 39 wherein the tantalum based organo-metallic precursor is selected from $Ta(NMe_2)_5$, $Ta(NEt_2)_5$, TBTDET, and tantalum halides.

42. (Original) The method of claim 39 wherein the nitrogen containing gas is ammonia (NH_3).

43. (Previously Presented) The method of claim 38, wherein the substrate is maintained approximately below a thermal decomposition temperature of the tantalum containing gas.

44. (Previously Presented) The method of claim 38, wherein the substrate is maintained approximately above a thermal decomposition temperature of the tantalum containing gas.

45.-55. (Cancelled)

56. (Currently Amended) A method of film deposition for integrated circuit fabrication comprising:

providing a process system, the process system having a chamber;

locating a substrate in the process chamber;

providing a tantalum containing gas to the chamber wherein the tantalum containing gas is a tantalum based organo-metallic precursor or a derivative thereof;

providing a nitrogen containing gas to the chamber; and

chemisorbing tantalum and nitrogen from the tantalum containing gas and the nitrogen containing gas to provide a tantalum-nitride layer on the substrate ~~The method of claim 51~~, wherein the substrate is maintained approximately above a thermal decomposition temperature of the tantalum containing gas.

57. (Cancelled)

58. (Previously Presented) A method of film deposition for integrated circuit fabrication comprising:

providing a process system, the process system having a chamber;

locating a substrate in the process chamber;

providing a tantalum containing gas to the chamber;

providing a nitrogen containing gas to the chamber;

chemisorbing tantalum and nitrogen from the tantalum containing gas and the nitrogen containing gas to provide a tantalum-nitride layer on the substrate; and

maintaining the substrate approximately above a thermal decomposition temperature of the tantalum containing gas.